

Name: _____

Date: _____

Exponents Practice Test

The types of problems on this practice test are just like those that will show up on the actual test!

Part One: Exponential Simplification: Please simplify each expression COMPLETELY.

1. $(x^2)(x^4)$	2. $-10(a^4)(a^{-3})$
3. $(14g^3h^3k^{90})^0$	4. $6x^{-2}y^0$
5. $\frac{r^{-3}s^5t^{-3}}{r^5s^{-8}t^5}$	6. $(2xy^4)(3x^{10}y^8)$
7. $(-2d^4e^{-9}f^6)(4d^3e^2f^1)^2$	8. $5a^2b(-2a^5b^6 + 6a^3b^6)$

Part Two: Word Problems: Please complete ALL parts of each word problem. **You MUST use the exponential growth/decay formula and SHOW ALL SUBSTITUTION.**

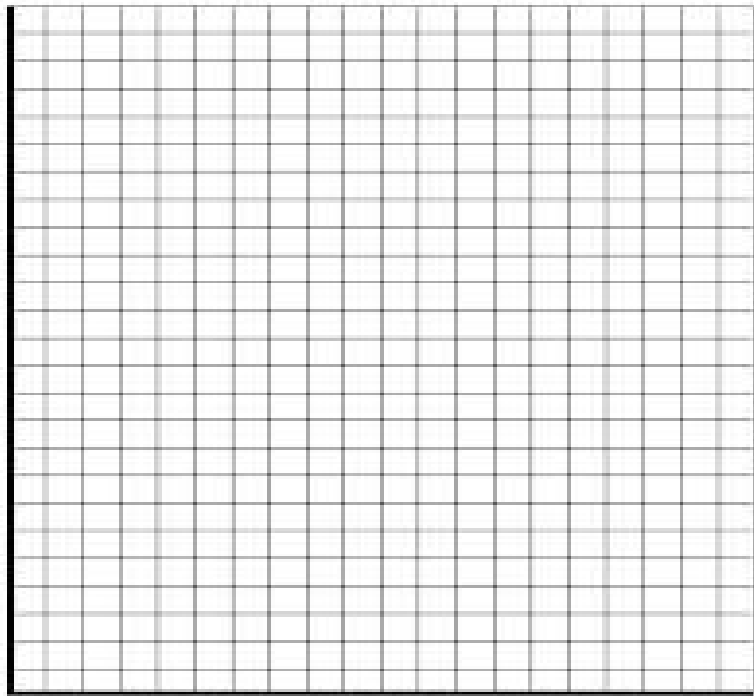
9. Emma is monitoring a rare species of insects, flying olsons. The population of flying olsons is increasing by a factor of five weekly. Emma is currently monitoring seven flying olsons.

a. Write the equation for this situation, leaving y and x as variables.

b. Fill in the table to determine how many flying olsons there will be after 0, 1, 2, and 3 weeks.

x	0	1	2	3
y				

c. Graph the situation. Be sure to label your axes and name your function.



d. How many flying olsons will there be after ten weeks? Show your work.

You MUST write and use the exponential growth/decay formula for each problem!
SHOW your substitution!

10. Shelby deposits \$3,980 into a savings account with a 3.4% ANNUAL interest rate. If the interest is compounded annually, what will Shelby's balance be after four years? Round to the nearest cent, at the END of the problem.

11. Simon deposits \$12,333 into a savings account with a 4.4% ANNUAL interest rate. If the interest is compounded QUARTERLY, what will Simon's balance be after three years? Round to the nearest cent, at the END of the problem.

12. Donna charges \$3,201 on her credit card, which has an 18% ANNUAL interest rate. If the interest is compounded MONTHLY, what will Donna owe on her credit card after six months? Round to the nearest cent, at the END of the problem.

13. The number of Twilight fans is decreasing by an annual rate of 20.3%. If there are 340,900 Twilight fans today, how many Twilight fans will there be in 2034? Round to the nearest fan.

14. The half-life of Latinizium is thirteen days. If 4,500 grams of Latinizium are present today, how many grams will be present after 117 days? Round to the nearest hundredth, if necessary.

Part Three: Writing about Math: Write in COMPLETE sentences using ALGEBRAIC terms.

15. Does the formula $y = 7,000(0.034)^4$ represent exponential growth or decay? Explain your answer.

16. Create a situation that could be represented by the formula: $y = 560(1.05)^6$
